

AMENDMENTS TO THE CLAIMS

Please amend Claims 1 and 8 as follows, without prejudice or disclaimer to continued examination on the merits:

1. (Currently Amended) A method of maintaining a network connection in an optical network, comprising:

obtaining channel assignment data ~~including~~ comprising which channel of a plurality of channels is assigned to the network connection on each of a plurality of spans used by the network connection, wherein the optical network comprises a plurality of switching nodes and an egress switching node in one of a ring and a mesh topology, the plurality of spans comprising working and protecting fibers operatively connecting the plurality of switching nodes and carrying the plurality of channels;

propagating the channel assignment data to the plurality of switching nodes in the optical network through one of an overhead data channel, an out-of-band protocol, a service channel, and an overlay IP network;

storing, at each of the plurality of switching nodes, the channel assignment data;

monitoring the optical network for a failed span between two switching nodes of the plurality of switching nodes and notifying the optical network in response to the failed span, wherein the two switching nodes perform a line switching operation in response to the notification in order to switch the network connection to the protecting fiber;

determining at the egress node which channel the network connection utilized on the failed span based on the channel assignment data and the notification of the failed span, wherein the channel assignment data and the notification of the failed span are utilized to efficiently configure which channel to drop responsive to the failed span, and wherein the channel is determined by the determining step responsive to the stored channel assignment data when the failed span occurs without a predetermination of the channel; and

dropping the channel selected by said determining step from the protecting fiber at the egress switching node, wherein the determining and dropping steps are performed following the line switching operation.

2. (Original) The method according to claim 1, wherein the channels are wavelength division multiplexed channels and the optical network is a wavelength division multiplexed optical network.
3. (Original) The method according to claim 1, wherein the channels are time division multiplexed channels and the optical network is a time division multiplexed optical network.
4. (Original) The method according to claim 1, wherein the channels are time division multiplexed channels at least some of which are carried over different wavelengths and where the optical network is a TDM over WDM network.
5. (Previously Presented) The method according to claim 1, wherein the optical network is compliant with SONET ("Synchronous Optical Network") or SDH ("Synchronous Digital Hierarchy") protocols, said notifying step utilizing a K-byte in a SONET/SDH frame to notify the optical network of the span failure and an identity of the failed span.
6. (Original) The method according to claim 1, wherein the optical network is a ring network wherein the switching nodes perform a line switching operation in response to the notification in order to switch the network connection to the protecting fibers.
7. (Previously Presented) The method according to claim 1, wherein the method maintains a plurality of network connections,
 - said obtaining step obtaining channel assignment data including the channels assigned to each of the network connections on each of the plurality of spans used by the network connections;
 - said monitoring step monitoring the optical network for a failed span and notifying the optical network in response to the failed span, wherein the switching nodes perform a line switching operation in response to the notification in order to switch the network connections to the protecting fibers, and wherein the line switching is performed between two nodes of the plurality of switching nodes adjacent to the failed span;

determining which channels the network connections utilized on the failed span based on the channel assignment data and the notification of the failed span; and

dropping the channels selected by said determining step from the protecting fiber at the egress switching node(s).

8. (Currently Amended) An egress optical switch node, comprising:

a channel assignment database ~~containing~~ comprising which channel of a plurality of channels is assigned to a network connection on each of a plurality of spans used to the network connection; and

a controller operatively connected to said channel assignment database, said controller configuring the egress optical switch node to drop a selected channel from the protecting fiber in response to a line switch operation on an optical network, wherein the line switch operation comprises switching nodes on either side of a failed span performing a line switch, and wherein the selected channel is dropped from the protecting fiber following the line switch operation;

said controller determining the selected channel in response to the line switch operation by accessing the channel assignment database and according to which channel was utilized by the network connection on a working fiber of the failed span that triggered the switch operation, wherein the channel assignment database is utilized to efficiently configure which channel to drop responsive to the failed span, and wherein the selected channel is determined by the controller responsive to the channel assignment data when the failed span occurs without a predetermination of the selected channel;

wherein the egress optical switch node is operatively connected to the optical network carrying the network connection using the plurality of channels and over a plurality of switching nodes connected by the plurality of spans including working and protecting fibers;

wherein channel assignments in said channel assignment database are propagated to said optical egress switch node through one of an overhead data channel, an out-of-band protocol, a service channel, and an overlay IP network; and

wherein the optical network comprises one a ring and a mesh topology.

9. (Previously Presented) The egress optical switch node according to claim 8,
said controller obtaining channel assignment data including the channels assigned to the network connection on each of the plurality of spans used by the network connection;
said controller storing the channel assignment data in the channel assignment database;
said controller receiving a notification from the optical network in response to the switching operation;
said controller determining the selected channel according to which of the channels the network connection utilized on the failed span based on the channel assignment data and the received notification of the failed span,
wherein the egress optical switch node drops the selected channel selected by said determining step onto the protecting fiber at the egress switching node.
10. (Original) The egress optical switch node according to claim 8, wherein the channels are wavelength division multiplexed channels and the optical network is a wavelength division multiplexed optical network.
11. (Original) The egress optical switching node according to claim 8, wherein the channels are time division multiplexed channels and the optical network is a time division multiplexed optical network.
12. (Original) The egress optical switch node according to claim 8, wherein the channels are time division multiplexed channels at least some of which are carried over different wavelengths and wherein the optical network is a TDM over WDM optical network.
13. (Previously Presented) The egress optical switch node according to claim 8, wherein the egress optical switch node is in an optical fiber ring is compliant with SONET (“Synchronous Optical Network”) or SDH (“Synchronous Digital Hierarchy”) protocols, said controller receiving a K-byte in a SONET/SDH frame as the notification.

14. (Original) The egress optical switch node according to claim 9, wherein the optical network is a ring network, wherein the switching nodes perform a line switching operation in response to the notification in order to switch the network connection to the protecting fibers.

15. (Original) An optical network including an egress optical switch node according to claim 8.